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The
Public Health Journal
OFFICIAL ORGAN
Canadian Public Health Association

Vol. XII TORONTO, MAY, 1921 No. 5

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A. H. ABBOTT

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The Public Health Journal

VOL. XII. TORONTO, MAY, 1921 No. 5

Ontario Municipal Health Efforts

BY DR. ROBT. WODEHOUSE, O.B.E., *District Officer of Health.*

In presenting to you the results of my efforts to make a survey of the monies spent by the Municipal Boards of Health of the Province of Ontario, it should be made clear that it is my opinion that any public health effort and its results are inseparable from the consideration of the final outlay associated with it. Indeed, the often repeated saying, "Public health is purchasable upto a certain point," by many leaders in state medicine, sufficiently warrants my desire to crave your attention to the following subject matter.

The Fort William Board of Trade asked the writer to provide them with comparative municipal health costs or expenditures, for cities in Canada, of a similar population, and the activities carried on with their cost allotment, for the Board's annual meeting in 1920. The cities, eight in number, were requested to furnish certain data and as is usually the case, forwarded the desired information. When the information received, was assembled, it was impossible to make a single comparison of the total expenditures or of the divisional activities, due to the fact that all the cities kept their accounts differently, many had side undertakings, such as garbage collection, relief of indigents, both sick and well, and officers with duties common to more than one city department, etc.

This prompted the motion put to the Ontario Medical Officers of Health Association last spring, for the appointment of a committee, to endeavor to suggest a uniform method of annual Board of Health reports, showing activities, with costs alloted, and further, to suggest an organization of municipal health departments, large and small, which would facilitate health costs and health-activity results, being made possible of comparison and study—both urban

and rural. The committee was appointed and a report is ready for presentation. During the interval I was transfered for duty by the Provincial Board of Health, to District No. 2. It was natural in a uniformly populated and organized area, to endeavor to collect data along the foregoing lines. This was first done for the purposes of educational addresses, to Boards of Trade, etc., in five cities, and was materially assisted in by Prof. Fitzgerald, who, by the way, had been doing similar investigating for comparative purposes, in the different provinces, in his capacity of advisor to the Canadian Red Cross Society in Hygiene. The municipal figures proved so interesting that it was deemed advisable that an attempt be made to study every municipality—city, town, village and township in the Province.

The chief officer was approached and kindly arranged that every facility be granted for searching the files of the Ontario Bureau of Municipal Statistics, and working up the municipal audits deposited with them.

A copy of the municipal report was obtainable, with detailed items of expenditure, for every city, town, village and township in Ontario, with the probable exception of six, and figures for these have since been obtained and incorporated in the report. The expenditures used for this paper are therefore the sworn expenditures for the year 1919, filed by the municipalities in accordance with the statutes. The population used were the assessors' figures for the same year, obtained from the same source as were also the total assessed values for 1918, and the total taxes levied on these assessments, which presumably would supply the money for 1919 public health expenditures. The following features have been worked out:

(I.) The total expenditure by each municipality.

(II.) The percentage or fraction that this amount is, of the tax income for the year for the municipality.

(III.) The rate per head population the expenditure represents.

(IV.) The taxes collected per head population.

(V.) The municipalities which did not spend a cent for public health.

(VI.) The municipalities which did not pay a cent to a medical officer.

(VII.) The amount paid by others to the M. O. H.

(VIII.) The cost per head of population the M. O. H. salary represented per year.

(It should be understood that every organized municipality actually has an officially appointed Medical Officer of Health.)

The following totals were obtained:

	Populations.	Municipal Income (Taxes).	Municipal Board of Health Expenditures.
Cities	1,109,387	$43,820,038	$869,267
Towns 5,000 pop.	155,622	2,695,756	40,244
Rural	1,334,941	21,567,297	137,927
	2,599,950	$68,083,091	$1,047,438

The Board of Health for the Province of Ontario appropriated for its population of 2,599,950, from a Provincial income of $19,000,000, for the year 1919, $528,000, or 1/34 of the Provincial income, about 20c. a head population.

The city of Toronto spent for its population of 489,681, from a tax income of $20,234,656, for 1919, $600,180, being 1/34 of the cities income, or about $1.23 a head, through the Board of Health.

Two other cities in the Province, Fort William and Port Arthur, spent respectively, over a dollar a head through their Boards of Health, the same year, for active health programme. In districts VI., VII., VIII. population conditions and municipal practices have produced rates of expenditure through Boards of Health and fractions of tax income for all sizes of municipalities, not comparable with Districts I., II., III., IV. and V.

In round numbers, Toronto might be stated to have 1/5 of the total population of the Province.

The cities, other than Toronto, in the Province, 23 in number, had a population in 1919 of 619,706, a municipal tax income $23,585,382, and a municipal expenditure aggregation $269,087 by their Boards of Health. This roughly disposes of two-fifths of the Provincial municipal population activities in Public Health, through Boards of Health.

The other three-fifths of the Province's population inhabit 22 towns of over 5,000 population, totalling 155,622, and had a tax income of $2,695,756, and paid through their Boards of Health a total of $40,242, and a rural population aggregating 1,334,941, with a tax income of $21,567,297, paying for health purposes through Boards of Health, $137,927. This rural group consists of 114 towns under 5,000 population, 147 villages and 544 townships. These last municipalities are most irregular in size or population. All towns are not even 1,000 souls strong, let alone the 2,000 we

usually associate with the requirements for incorporation as such. Many villages have over a 1,000 population. Townships vary from three figures up to five figures, inclusive, a few being over 5,000 and one over 30,000 population. It evidently follows that the population basis for comparison, is a very poor one, but the best available. The three groupings used, namely cities, towns (over 5,000), and rural, are apparently self grouped, financially, in accordance with this. This fact was not known at the beginning. For instance, only in one case in the province is a city Board of Health spending less than 15c. a head population a year, the average for city populations being above 70c. On the other hand, towns of 5,000 population in each of three counties spent just less than 10c. a head population a year, the average for the Province being above 25c. a head population a year. The rural communities of 38 out of 54 counties and districts, spent under 10c. a head population per year, the average for the Province actually being 10c. a head population per year. Below is shown in Table II. a regrouping, which seems nearer to the actual conditions—the majority of cities, outside of Toronto, being on a par with the 5,000 population towns. The actual fractions of tax income spent by Boards of Health are shown and the amount per head population this expenditure represents, and also in two right hand columns are shown appropriate rates which would furnish a more nearly modern conception of a Board of Health's obligation to a community in the way of furnishing a programme to "prevent sickness and ameliorate suffering," and the fraction of municipal income it would come to:

	Population	Province Fraction of	Tax Income	Fraction of Income spent for Public Health.	Health Expenditure Aggregate	Health Expenditure per head pop. per year.	Recommended	
							Fraction of Income for Health Expenditure	Health Expenditure per head population
Province of Ontario	2,599,950	1/1	$19,000,000	1/34	$528,000	$0.20	.....	.....
City of Toronto	489.681	1/5	20,234,656	1/34	600,180	1.23	1/34	$1.25
Cities other than Toronto	609,706	1/5+	23,585,382	1/88	269,087	0.44	1/45	0.70
Towns over 5,000 population	155,622	1/5—	2,695,756	1/67	40,244	0.26	1/45	0.70
Rural	1,334,941	8/15+	21,567,297	1/163	137,927	0.10	1/66	0.25

Strange to say, the rate suggested to Boards of Trade in District II., was 65c. a head population per year, for cities of over 15,000 population. Upon investigation, the average for all cities in the Province proved to be 78c. a head population a year, but as shown in Table II., the true city average outside Toronto is 44c. a head population a year. If this rate were increased to, say 70c. a head, and the fraction of income increased to (twice) its present rate, it would bring it into what would appear to be its natural relation to Toronto's fraction, and that of towns of over 5,000 population, its next group down the table, at say, 1/45.

That the rural communities are entirely out of proportion to their health obligations is evident from the fact that their whole rate of 10c. should be absorbed as the minimum fee for the services of their M. O. H. It would appear that this rate of expenditure through the Board of Health should be at least 25c. a head. As stated above, towns over 5,000 population require rates of small cities, owing to their natural inclinations, interests, municipal activities and desire for municipal service in this and other lines. Towns under 5,000 population only need the rural rate, but the existing rural rate should be that of the towns over 5,000, as paid in 1919, bringing the rural rate up to the 25c. a head suggested above, and the resulting fraction of the municipal income from taxes up to 1/66.

It would appear from a study of the conditions that this would lead to a fair apportionment of activity in public health in the three types of fields, namely, large city, small city, and rural communities, warranted by the preventable, disease and death incident hazards if this proportion of municipal income were diverted to public health municipal activities, namely: 1/34 for large cities, 1/45 for small cities, and 1/66 for rural communities.

These proportions should finance all economically conducted undertakings, including medical school inspection. It necessarily follows that populations would need to be grouped for administration of public health into areas having an aggregate of at least 40,000 population to warrant the employment of full time Medical Officer of Health, at the minimum of $4,000 per year, including expenses, based upon the rate set by law in New York State of 10c. a head per year. I believe the necessary personnel and programme of activities for 40,000 people could be financed on the income suggested in Table II., if the different scales were applied to the different municipal population forming the area. This indicates a public health administrative area of a minimum size. As this size in-

creases the necessary funds required to finance it, will be found, by applying the same scales, to be provided to pay the additional personnel, on the same basis, but of course the M. O. H. salary will have a limit and thus afford additional source of money for other scientific or professional personnel. As the density of population increases the time lost, by transportation of personnel and their wards, diminishes and the result from efforts of personnel per office hour increases sufficiently to cope with the increased disease hazard from preventable causes, whose climb up the scale is due to population congestion.

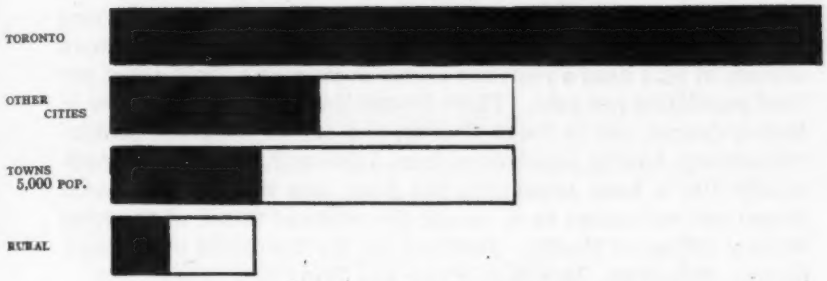
District No. II. has been taken as a specimen area, and its details are presented in Table III.

TABLE III.

PROVINCIAL BOARD OF HEALTH DISTRICT No. II.

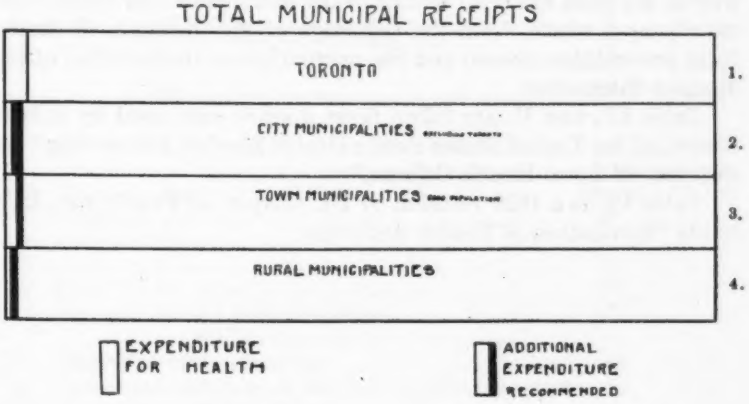
	POPULATION MUNICIPALITIES						PUBLIC HEALTH EXPENDITURES 1919 Total per head Pop. MUNICIPALITIES			SALARIES PAID M.O's. H. MUNICIPALITIES						Average per head pay for Medical Officers of Health in all types of Municipalities in District No. II, where paid at all, is 4c. per year. Paid Nothing	
	Cities	Number	Towns 5,000 Pop.	Number	Rural	Number	Cities	Towns 5,000 Pop.	Rural	Cities $	Per Head	Towns 5,000 Pop. $	Per Head	Rural $	Per Head	Municipalities	Population
Bruce	..	..	..	..	41,656	30	..	..	6c.	..	..	..	..	992	1/3c.	9	14,246
Dufferin	..	..	..	..	14,130	9	..	..	3c.	..	..	..	..	245	2c.	3	4,144
Grey	11,768	I	..	..	47,177	26	15c.	..	8c.	500	4c.	..	..	1,831	5c.	9	16,262
Huron	..	..	..	..	46,965	26	..	..	7c.	..	..	..	..	1,325	4c.	8	11,855
Perth	17,143	I	..	..	32,911	15	35c.	..	7c.	500	3c.	..	..	1,163	4c.	2	2,867
Waterloo	32,325	II	5,105	I	32,216	10	27c.	9c.	5c.	1,400	4c.	300	3c.	760	3c.	2	4,966
Wellington	16,974	I	..	..	34,464	21	16c.	..	8c.	500	3c.	..	..	1,348	4c.	2	2,231
	78,210	V	5,105	I	24,719	137	24c.	9c.	7c. ave'ge	2,900	4c'	300	3c.	7,664	4c.	35	56,571

I.



BLACK PORTION—AMOUNT SPENT PER HEAD BY BOARD OF HEALTH.
WHITE ENCLOSURE—ADDITIONAL AMOUNT RECOMMENDED TO PROVIDE MODERN PROGRAMME.

II.



It is evident from this table what a chaotic condition exists among our Medical Officers of Health, 35 of whom accepted office in 1919 for some municipality and did not receive one cent for their services. The total for the whole Province who did this in 1919 is 318. Thirty-five rendered this legally official service to *one fifth* of the *rural population* of *District No. II.*, the balance of the rural population of this district paying their Medical Officers of Health an average of 4c. a head a year, one county averaging 4/10 of a cent per head population per year. Three townships in Grey County, one in Huron County, one in Perth County, and one in Waterloo County, respectively, having populations from 1,500 to 3,000, paid approximately 10c. a head population per year, and there is no special reason one can assign to it, except the personal factor of the local Medical Officer of Health. Just look up the townships of Holland, Keppel, Sydenham, McKillop, Ellice and Dumfries, respectively.

Having suggested the proper charge per head for different types of municipal areas and also the population size of a minimum public health administrative area supporting a full time M. O. H., it is only fitting that your attention be brought to three suggested allotments of time, personnel (which is the same), and money, for equipment and undertakings of programme. These allotments are based upon scientific calculation endeavoring to arrive at the most promising fields for remuneration for effort, in the way of the most financial saving to the individuals and to the community as a whole, from the reduction of the incidence of deaths from preventable disease and the prevention or amelioration of the diseases themselves.

Table IV. and V. are taken from a score card used by Robert Olesen, of the United States Public Health Service, for scoring "the efficiency of Local Health Officers."

Table VI. is a 1920 revision by Dr. Chapin, of Providence, R.I., of his "Evaluation of Health Activities."

TABLE IV.—ACTIVITIES.

	Character of Activity.	Score of Points Perfect	Allowed
1	Communicable diseases; suppression and prevention	18	
2	Laboratory diagnosis, collection and transmission of specimens for diagnosis and investigation. Distributions of antitoxins and serums	10	
3	Education of Public; Exhibits, lectures, circulars, newspaper articles, etc.	8	
4	Vital Statistics	7	
5	Co-ordination of extraneous health agencies	6	
6	Concurrent disinfection	6	
7	Infant and maternal welfare work	6	
8	Public Health Nursing	5	
9	Control of water supplies	4	
10	Inspection and control of milk supplies	4	
11	Occupational diseases, prevention and control	4	
12	Medical Inspection of school children and correction of defects	4	
13	Mental Hygiene	3	
14	Control of such preventable diseases as heart and kidney diseases, etc.	3	
15	Clerical work, correspondence, records and reports	3	
16	Sewage disposal	3	
17	Attendance at conferences, board of health meetings	3	
18	Food and meat inspection and control of slaughter houses, butcher shops and grocery stores	1	
19	Inspection of public buildings	1	
20	Terminal fumigation	½	
21	Investigation and abatement of nuisances	½	
	Total	100	

TABLE V.—EQUIPMENT.

	Nature of Equipment.	Score in Points Perfect	Allowed
1	Telephone	20	
2	Transportation	17	
3	Clerk	12	
4	Office	10	
5	Report Cards (a) From Physicians	5	
	(b) To state board of health	5	
6	Quarantine cards (Placards)	8	
7	Vaccine and antitoxine or facilities for obtaining same	7	
8	Record Books of filing cases	6	
9	Literature for self-education and reference	5	
10	Literature for distribution	4	
11	Fumigants or facilities for obtaining same	1	
	Total	100	

TABLE VI.—RELATIVE VALUES OF HEALTH WORK.

Vital Statistics	60	6 %
Education	80	8 %
Laboratory	50	5 %
Control of nostrums	50	5 %
Care of Sick Poor	50	5 %
Food—		
Adulteration	0	0 %
Sanitation	10	1 %
Milk—		
Adulteration	3	0.3%
Sanitation	17	1.7%
Nuisances—		
Privy sanitation	60	6 %
Housing	20	2 %
Plumbing	10	1 %
Nuisances	10	1 %
Refuse removal	0	0.0%
Fly and mosquito control	10	1.0%
Infant Mortality—		
Nurses	80	8 %
Supervision of midwives	10	1 %
Babies' boarding houses	5	0.5%
Milk stations	5	0.5%
Consultations	20	2 %
Prenatal clinics	10	1 %
School Inspection	80	8 %
Contagious Diseases—		
Home isolation	100	10 %
Hospitalisation	50	5 %
Immunization	50	5 %
Venereal diseases	20	2 %
Tuberculosis—		
Nurses	60	6 %
Dispensaries	40	4 %
Hospitalisation	40	4 %
Total Points	1,000	100 %

Finally, the county of Waterloo has been prepared for division for public health purposes into the approach to the 40,000 population basis suggested as the minimum supporting a full time M. O. H., and is here presented.

The mapping out of a suitably located 40,000 population for public health administrative purposes, proves to be a difficult undertaking owing to—

(*a*) Railway facilities.

(*b*) Good roads facilities.

(*c*) County and township boundaries.

(*d*) Provincial Board of Health District jurisdictions, and the

(*e*) Necessity of not robbing adjacent "probable areas" for arranging similar administrative undertakings, for accessable populations to complete the necessary minimum required for finance.

It will be observed that the lower half of the county of Waterloo was chosen, with one township from the south of Wellington county and one half of a township from the north of Wentworth county, which is in Provincial Health District No. III.

The following data applies to the area selected:

	Municipality	Population	Rate per head	Amount for Public Health
City	GALT	16,000	75c.	$12,000
Town	PRESTON	5,000	50c.	2,500
RURAL—				
Town	HESPLER	3,000	25c.	700
Village	AYR	800	25c.	200
Townships	DUMFRIES	2,000	25c.	500
	BEVERLEY		25c.	300
	PUSLINCH	2,333	25c.	600
	WATERLOO	3,000	25c.	750
		32,133		$17,550

This population area will in 1921 be 40,000.

BUDGET—

M. O. H. Salary and Expenses	$4,000.00
4 Nurses P. H.	5,000.00
Stenographer Clerk	850.00
Sanitary Inspector	1,000.00
Personnel	$10,850.00
Administration and epidemiology	7,050.00
	$17,900.00

It is practicable but not probable, and a county officership is in my opinion negative for both, for the following reasons:

The M. O. H. cannot be omnipotent, which would be really necessary to act as school officer for so widely a distributed area, and the budget will not support more than one full time medical personnel.

In the appendix to this article is contained a city, town and county resume of financial data for the Province of Ontario.

In conclusion, may it be said:

1. Every Medical Officer of Health and every medical practitioner must urge the proper remuneration of Medical Officers of Health by municipalities.

2. Moneys must be obtained to carry on a modern public health programme.

3. Moneys obtained must be sanely spent—as indicated—for equipment, administration and activities, apportioned along lines worked out above in Tables IV. and V. by Robert Olesen, of the U. S. Public Health Service, and in Table VI. by Dr. Chapin, of Providence, R.I., and also in 1916, by Schneider, of the Russel Sage Foundation.

4. Conclusion number three applies just as much to small departments as in large centres, in so far as it suggests time allotment and channels promising remuneration by actual results in preventing disease, for even the personnel on one.

287 Kennedy Ave., Toronto.

SURVEY BY DISTRICTS OF MUNICIPALITIES

NOT CONTRIBUTING TO

MUNICIPAL HEALTH UNDERTAKINGS.

District No.	Number of Municipalities	Population	Municipalities Showing No Municipal Expenditures by Board of Health				Municipalities showing No Money Paid to a Medical Officer of Health			
			No.	Approx.	Population	Approx.	No.	Approx.	Population	Approx.
I.	120	373,580	13	1/9	12,718	1/30	44	1/3	71,061	1/5
II.	143	333,134	8	1/18	7,546	1/40	35	1/4	56,571	1/6
III.	117	957,260	9	1/13	6,802	1/136	38	1/3	66,577	1/16
IV.	172	329,321	11	1/15	9,006	1/366	63	1/3	89,923	3/11
V.	155	408,835	22	1/7	24,413	1/16	66	2/5	89,470	9/40
VI.	71	76,370	7	1/10	2,764	1/28	26	1/3	16,085	1/5
VII.	30	56,141	6	1/5	2,673	1/21	15	1/2	7,133	1/8
VIII.	53	64,239	12	1/4	6,758	1/9	31	1/2	25,523	2/5
	861	2,598,880	88	1/10	72,680	1/36	318		412,343	1/6

CITIES.

Dist.	Under D.M.O.H.	Not under D.M.O.H.	Population.	Total Taxes Income.	Pub. Health Expenditure.	Rate per Capita.	Fraction Income.
1.	St. Thomas		17,209	349,595	3,297	.19	1/106
	Border Cities—						
	Essex		41,977	1,230,482	27,001	.64	1/45
	Chatham		15,030	337,059	2,211	.15	1/152
	Sarnia		12,178	287,185	2,206	.18	1/130
		London	58,421	1,422,001	11,266	.19	1/126
	Woodstock		10,051	194,417	2,597	.26	1/75
2.	Owen Sound		11,768	241,009	6,763	.15	1/134
	Stratford		17,143	348,527	5,913	.35	1/59
	Galt		12,558	276,925	3,616	.29	1/77
	Kitchener		19,767	422,026	5,025	.25	1/91
	Guelph		16,974	337,179	2,671	.16	1/126
3.	Brantford		28,725	602,961	9,852	.34	1/51
	St. Catharines		19,189	574,197	5,006	.26	1/115
	Niagara Falls		12,434	290,234	2,243	.18	1/129
		Toronto	489,681	20,234,656	600,180	1.23	1/34
		Hamilton	110,137	2,570,564	33,801	.31	1/76
4.	Belleville		12,345	242,360	2,103	.17	1/110
	Peterborough		20,904	496,403	3,511	.17	1/141
5.		Ottawa	104,007	10,861,222	94,608	.91	1/114
	Kingston		23,737	437,957	2,914	.12	1/150
7.	Port Arthur		15,100	714,339	16,438	1.09	1/38
	Fort William		19,523	865,557	21,530	1.10	1/43
8.	Sault Ste. Marie		20,529	483,238	3,895	.19	1/124

TOWNS, 5,000.

Dist.		Population.	Total Taxes Income.	Public Health Expenditure.	Rate Per Capita.	Fraction of Income.
1.	Ingersoll	5,278	81,621	440	.083	.00539
2.	Waterloo	5,105	118,194	463	.091	.00392
3.	Niagara Falls	9,876	188,718	1408	.143	.00746
	Dundas	5,078	67,547	1915	.377	.02835
4.	Trenton	6,107	97,288	1362	.223	.01400
	Oshawa	9,748	171,161	2086	.214	.01216
	Barrie	6,775	135,476	1029	.152	.0076
	Collingwood	7,949	135,239	967	.122	.00715
	Midland	7,339	113,772	381	.052	.00335
	Orillia	8,058	165,119	1081	.134	.00655
	Lindsay	7,880	173,752	1532	.194	.00882
5.	Smith's Falls	6,356	119,725	587	.092	.00490
	Brockville	9,418	189,149	3689	.392	.01950
				2/3 Garbage	.13	
	Hawkesbury	5,276	43,518	684	.130	.01572
	Pembroke	7,600	106,052	1317	.173	.01242
	Cornwall	6,918	92,081	738	.107	.00802
	Renfrew	6,384	86,289	4538	.710	.05259
6.	North Bay	9,413	170,644	1672	.178	.00980
	Cobalt	5,181	171,270	1819	.351	.01062
	Timmins	6,643	69,260	133	.099	.00360
7.	Kenora	5,031	120,584	1996	.397	.01655
8.	Sudbury	8,227	179,360	10407	1.264	.05802

District No. 1 Counties	1919 Assessed Population Cities	Towns 5,000	Rural	Taxes Imposed, 1918 Municipal Income, 1918 Cities	Towns 5,000	Rural	Board of Health Expenditures, 1919. Cities	Rate per Head	Fraction Income	Towns 5,000	Rate per Head	Fraction Income	Rural	Rate per Head	Fraction Income
Elgin	17,209	.....	26,342	349,545	.....	552,435	3,297	.19	1/106	.....	....	.....	2,443	.09	1/220
Essex	41,977	.....	40,418	1,230,482	.....	1,002,800	27,001	.64	1/45	.....	....	.....	4,520	.11	1/222
Kent	15,030	.....	41,787	337,059	.....	929,451	2,211	.15	1/152	.....	....	.....	2,761	.07	1/337
Lambton	12,178	.....	34,355	287,185	.....	726,480	2,206	.18	1/130	.....	....	.....	1,661	.05	1/437
Middlesex	58,421	.....	41,109	1,422,001	.....	683,578	11,266	.19	1/126	.....	....	.....	3,268	.08	1/209
Oxford	10,051	5,278	29,625	194,417	81,621	573,801	2,597	.26	1/75	440	.08	1/19	2,748	.09	1/209
District No. 2—															
Bruce	.....	.....	41,856	.....	.....	728,503	.....	....	.....	.....	....	.....	2,689	.06	1/271
Dufferin	.....	.....	14,130	.....	.....	276,519	.....	....	.....	.....	....	.....	413	.03	1/670
Grey	11,768	.....	47,177	241,009	.....	651,553	*6.763	.15	1/134	.....	....	.....	3,881	.08	1/171
Huron	.....	.....	46,965	.....	.....	802,589	.....	....	.....	.....	....	.....	3,240	.07	1/248
Perth	17,143	.....	32,911	348,521	.....	604,337	5,913	.35	1/59	.....	....	.....	2,281	.07	1/265
Waterloo	32,325	5,105	32,216	698,951	118,194	534,636	8,631	.27	1/81	463	.09	1/225	1,750	.05	1/306
Wellington	16,974	.....	34,464	337,179	.....	608,140	2,671	.16	1/226	.....	....	.....	2,593	.08	1/235
District No. 3—															
Brant	28,725	.....	20,852	602,961	.....	318,133	9,852	.34	1/51	.....	....	.....	1,904	.09	1/167
Haldimand	.....	.....	19,894	.....	.....	329,916	.....	....	.....	.....	....	.....	792	.04	1/417
Halton	.....	.....	21,203	.....	.....	401,042	.....	....	.....	.....	....	.....	1,884	.09	1/213
Lincoln	19,189	.....	24,344	574,197	.....	463,709	5,006	.27	1/115	.....	....	.....	1,494	.06	1/310
Norfolk	.....	.....	23,942	.....	.....	348,833	.....	....	.....	.....	....	.....	1,844	.08	1/189

Counties	1919 Assessed Population: Cities	Towns 5,000	Rural	Taxes Imposed, 1918 Municipal Income, 1918: Cities	Towns 5,000	Rural	Board of Health Expenditures, 1919: Cities	Rate per Head	Fraction Income	Towns 5,000	Rate per Head	Fraction Income	Rural	Rate per Head	Fraction Income
District No. 3—(Continued).															
Peel	.....	.....	20,207		—	416,961	.....	....	.....	.....	....	.....	846	.04	1/492
Welland	12,434	9,876	34,323	290,235	188,718	668,042	2,243	.35	1/59	1,408	.14	1/134	8,297	.24	1/80
York	489,681	.....	90,271	20,234,656	.....	1,671,423	600,180	.27	1/81	.....	....	.....	8,222	.09	1/203
Wentworth	110,137	5,078	28,104	2,570,564	67,547	426,720	33,801	.16	1/126	1,915	.38	1/35	6,941	.25	1/62
District No. 4—															
Durham	.....	.....	22,665	.....	.....	387,679	.....	....	.....	.....	....	.....	1,343	.06	1/289
Haliburton	.....	.....	5,637	.....	.....	48,651	.....	....	.....	.....	....	.....	1,112	.20	1/44
Hastings	12,345	6,107	34,585	242,360	97,288	479,403	2,103	.17	1/110	1,362	.22	1/71	3,187	.09	1/158
Muskoka	.....	.....	15,606	.....	.....	159,215	.....	....	.....	.....	....	.....	1,289	.08	1/124
Northumberland	.....	.....	29,081	.....	.....	412,667	.....	....	.....	.....	....	.....	2,947	.10	1/180
Ontario	.....	9,748	30,995	.....	171,161	509,646	.....	....	.....	2,086	.21	1/82	1,599	.05	1/323
Peterborough	20,904	.....	19,037	496,403	.....	243,451	3,511	.17	1/141	.....	....	.....	1,261	.07	1/193
Prince Edward	.....	.....	15,192	.....	.....	254,125	.....	....	.....	.....	....	.....	978	.05	1/256
Simcoe	.....	30,121	50,632	.....	549,606	774,108	.....	....	.....	3,458	.11	1/159	2,770	.05	1/279
Victoria	.....	7,880	18,786	.....	173,752	296,301	.....	....	.....	1,532	.19	1/113	1,431	.07	1/207
District No. 5—															
Carleton	104,007	.....	15,450	10,861,222	.....	210,808	94,608	.91	1/114	.....	....	.....	3,022	.20	1/70
Dundas	.....	.....	16,179	.....	.....	267,991	.....	....	.....	.....	....	.....	451	.03	1/594
Frontenac	23,737	.....	17,844	437,957	.....	229,535	2,914	.12	1/150	.....	....	.....	1,170	.05	1/196
Glengarry	.....	.....	18,075	.....	.....	232,240	.....	....	.....	.....	....	.....	1,493	.08	1/155
Lanark	.....	6,356	24,734	.....	119,725	355,206	.....	....	.....	587	.09	1/204	1,657	.07	1/214
Leeds	.....	9,418	22,727	.....	189,149	343,873	.....	....	.....	3,689	.39	1/51	701	.04	1/491
L. & Addington	.....	.....	17,867	.....	.....	267,418	.....	....	.....	.....	....	.....	2,098	.12	1/127

Counties	1919 Assessed Population Cities	Towns 5,000	Rural	Taxes Imposed, 1918 Municipal Income, 1918 Cities	Towns 5,000	Rural	Board of Health Expenditures, 1919. Cities	Rate per Head	Fraction Income	Towns 5,000	Rate per Head	Fraction Income	Rural	Rate per Head	Fraction Income
District No. 5—(Continued)															
Prescott	.....	5,276	19,753	.....	43,518	182,447	.....	...	.....	684	.13	1/64	2,383	.12	1/77
Renfrew	.....	13,984	35,775	.....	192,341	345,147	.....	...	.....	5,855	.42	1/33	2,117	.06	1/163
Russell	.....	.....	19,243	.....	.....	147,255	.....	...	.....	.....	...	.....	1,387	.07	1/106
Stormont	.....	6,918	16,399	.....	92,018	233,205	.....	...	.....	738	.11	1/125	1,049	.06	1/222
Grenville	.....	.....	15,563	.....	.....	198,187	.....	...	.....	.....	...	.....	993	.06	1/200
District No. 6—															
Nipissing	.....	9,413	15,109	.....	170,644	106,925	.....	...	.....	1,672	.18	1/102	1,070	.07	1/100
Parry Sound	.....	.....	18,340	.....	.....	193,801	.....	...	.....	.....	...	.....	8,152	.44	1/24
Timiskaming	.....	11,824	21,684	.....	140,530	455,411	.....	...	.....	2,070	.18	1/68	16,681	.77	1/27
District No. 7—															
Kenora	.....	5,013	8,662	.....	120,584	52,153	.....	...	.....	1,996	.40	1/50	667	.18	1/78
Rainy River	.....	.....	8,355	.....	.....	167,573	.....	...	.....	.....	...	.....	1,540	.18	1/109
Thunder Bay	34,623	.....	4,488	1,579,896	.....	108,936	37,968	1.10	1/42	.....	...	.....	507	.11	1/215
District No. 8—															
Sudbury	.....	8,227	18,615	.....	179,360	205,310	.....	...	.....	10,407	1.26	1/17	4,938	.27	1/42
Algoma	20,529	.....	10,576	483,238	.....	126,442	3,895	.19	1/124	.....	...	.....	1,082	.10	1/117
Manitoulin	.....	.....	6,292	.....	.....	55,487	.....	...	.....	.....	...	.....	407	.06	1/136

NOTE:—Valuable assistance in mathematical work pertaining to basis of above tables was afforded through kindness of Mr. R. V. H. Smith, Confederation Life Association. Copies of compilation of detailed figures for each municipality are available for reference with the Department of Hygiene, University of Toronto. Provincial Chief Health Officer or Dr. R. E. Wodehouse. Zincs suggested by Mr. Manchester.—R. E. W.

The Public Aspect of Tuberculosis*

By Franklin Royer, M.D., D.Sc.,
Executive Office, Massachusetts-Halifax Health Commission.

THOSE of us who have watched the trend of public health opinion over a period of twenty-five years have noted a good deal of change in the point of view concerning a number of communicable diseases. From an administrative standpoint, as far as most of our communicable diseases were concerned, we approached the public health programme with the thought that quarantine and the control of the individual infectious case would give the public protection. For a long time health officers looked upon the control of the so-called quarantinable diseases, together with the enforcement of certain sanitary regulations concerning plumbing and garbage disposal, as the whole field of public health work.

With the great tuberculosis promotion campaign coming on in the 90's, and becoming intensive in the early 1900's, many health officers held aloof. Knowing that tuberculosis was widespread, that it reached into nearly every family in the community and that quarantine, the only protective method they knew, would mean almost universal restriction, they naturally hesitated.

General practitioners with a tendency to specialize upon diseases of the chest led the way, and naturally, having their minds set on diagnosis and treatment, and their whole training along the line of curative medicine, they featured the clinical side and scientific and bacteriological or the diagnostic side. Few of these early writers were competent to approach the subject from a broad gauge public health viewpoint.

Mistakes were made, of course. I have a very clear recollection of promises made by some tuberculosis workers, that given an abundance of sanatorium beds, tuberculosis could be wiped out in fifteen years. Think of it! and largely by curative measures.

Under this stimulation enormous sum were appropriated and many sanatorium beds were provided. Usually they were planned to take only early and incipient cases of the disease and to cure them. After about ten years of this sort of activity it began to

*An address before the Nova Scotia Health Officers' Association, at a public meeting in Kentville, July 6th, 1920.

dawn on the clinicians themselves, and the sanatorium workers accumulating by this time to large numbers, that something was wrong; that it was a very pretty promise in theory to talk about incipient cases, but quite another thing practically to get them. It was found that about 5% of the cases sent in by the average practitioner could by a little stretch of the imagination, be called incipient. It was found that by appointing and using a series of specially selected examining physicians at strategic points, or by suitably grouping clinics and admitting through them, they could get about 12% of incipient cases, about 30% of moderately advanced, and the remainder, about 68%, far advanced, and in the latter class reside the dangerous.

Next came the great agitation against spitting. The open case was considered a tremendous menace to society, and actual persecution of the tuberculous individual was noted in many sections of the country. Phthisiophobia ran rampant. House infection was considered the great casual factor, and many adults breaking down with the disease were said to have been infected by living in a room previously occupied by some tuberculous person, dying of it, or infected through carelessness of some fellow workman.

About this time physicians became greatly agitated over the use of tuberculin. The medical profession, notwithstanding Koch's premonitory advice, insisted upon believing that tuberculin would, in some mysterious way, act against tuberculous infections as diphtheria anti-toxin acts specifically against diphtheria infections. Thousands of individuals were injected with tuberculin, the doctor making the injection usually having no clear comprehension as to how it might work. Many tuberculous persons were sacrificed where tuberculin was injudiciously used.

I would not have you believe that tuberculin has not been of real value, because it is only by its use in the hands of specially trained persons with large numbers available for testing that we have been able to prove definitely and confirm pathological observations that tuberculosis is well nigh universal. It is only by careful tuberculin tests, by deep injection, by skin, or eye test that we have been able to know the period of life when infection takes place. I have several married friends who are themselves tuberculous, and whose children were born and brought up in an atmosphere known to have a tuberculous occupant. These medical gentlemen have tested their own children from time to time for the purpose of determining and proving when they became infected.

By means of tuberculin tests then, we have been able to prove that most persons are infected early in life, and perhaps 90% by the fifteenth year of life. We look upon the curative power of tuberculin to-day as slight. Trudeau's mandate is safe, viz.: that it has no value whatever, except in a case of a chronic tuberculosis not going on to complete healing. Here a minute dose given during intervals when the individual apparently makes no improvement, may occasionally stimulate reparative processes and may help push the patient on a little way along the road to arrest or cure.

This teaching was in turn followed by agitation for sanatorium care for every tuberculous person. Perhaps the leaders of this fad, a sanatorium bed for each tuberculous person, were most active in England, but it was preached a good deal on this side of the water.

Most of these extreme views were put forth by persons not actively engaged in administrative public health work, and most of those putting forward the view had no accurate conception of the universal prevalence of tuberculosis, or the real period in life when infection occurs. Few of them had practical notions as to exactly how infection occurred.

Stewart, of Winnipeg, in a splendid paper from which I have culled modern views, has this terse paragraph:

"Tuberculosis is a human noxious weed lying latent in practically all human soils, finding its opportunity for growth in some bit of bad human husbandry, some over-strain, some over-fatigue, some dissipation, some neglect, some lowering of vitality through illness. When one presents himself with signs of tuberculosis, we do not trouble to inquire about infection. We inquire as to the particular kind of bad farming, the particular cause of breakdown."

By a natural evolution we have come to look upon the whole question of tuberculosis from a more rational viewpoint. We concede now that children of the tuberculous are apt to be born entirely free from infection; that the child of the tuberculous parent may have certain inheritances, such as susceptible tissues, in which the organisms may find less resistance than in others; but we concede that the infection takes place because of the environmental conditions, from an open case in the home, or from infection disseminated recently over carpets or rugs, over floors, or introduced through food infected in the home, or first infected prior to receipt.

We concede that most children are infected very early in life in the creeping and walking stage; that there is almost universal infection by fifteen, that the infection is proportionate to the viru-

lence of the germs taken in, and is apt to be proportionate to the size of the dose of infection. Particularly susceptible babies and young children may promptly sicken and die, some from meningitis, some from pneumonia or peritonitis, some from bone infection of generalized abscesses. The majority of these infancy and childhood infections are certainly the majority of spontaneously cured, however, and perhaps some resistance to further infection is created through spontaneous cure comparable to a certain extent to immunity and a direct result of this childhood infection.

When we hear of an adult being acutely sick with tuberculosis, we do not ask anyone where did he acquire the disease. On the other hand, we ask what has he been doing to permit his resistance to be lowered? What has he done to allow the infection to run riot in his tissues? Has he been overworking with repeated fatigue? Has he been needlessly exposing himself to bad weather conditions or repeatedly catching colds? Has he been eating and drinking to excess. Has he been indulging in physical or sexual excesses? Has he suffered from any continued fever? Has he been under unusual physical or mental strain?

In this connection let me say, there is peculiar significance in the acute tuberculosis that occurs in girls about puberty when menstruation first bring an unusual drain on the girl's tissues; in boys of the same age when illicit sex activity or masturbation may cause a lowering of tissue resistance. There is marked significance in the breakdown that occurs with consummation of marriage and the excessive venery so common in the newly married, or with those in early adult life indulging in sexual excesses out of wedlock. There is significance in the breakdown that occurs when boys and girls leave school to take up the hard physical or confining labour of shop or mill. All of these are examples of lowered resistance serving as the casual factor in the acute lighting up of tuberculous processes in persons who may have acquired infection many years earlier, usually in childhood.

Unemployment, with its resultant bad feeding, may at any age permit the same sort of drop in resistance to tuberculous invasion.

To-day, the public health worker looks not upon infection as the immediate cause of the breakdown in adolescent life. This officer knows that the breakdown is in all probability remote, and may bear no near relation whatever to the date of infection.

How, then, shall he approach the question from a public health standpoint? What shall be our method of attack? With these views squarely before us, how shall we acquire knowledge, first, of

the chief symptoms of the disease upon which a diagnosis may be based? How shall we determine what may result from residence in a house with an open case? How much of our programme shall be aimed at control and management of the individual case, including, of course, his re-education? How much of his re-education may be brought about through clinics and public health nurses? How far shall we utilize the sanatorium in this purpose? What shall we do with the open case in houses where the sick cannot be kept away from the well, particularly, if the well be of child age or infant age? What shall we do about teaching those who are in humble circumstances in life, or who are necessitous, in order that we may best protect the community? How much of this work shall be done by bureau officials and public teachers? How much by private philanthrophy? What part of our programme shall eventually be carried by state agencies? What portion by the smaller units? Whence are we drifting? These are suitable problems for discussion before a group of health offiicers.

Our programme should be worked out with certain definite aims and objects in view, and once having been agreed upon, all helpful agencies should be co-ordinated and strive to work along this line. It is only by co-ordinated group effort and team work that lost motion may be taken up, that overlapping may be eliminated and an efficient programme be promulgated.

In discussing our method of attack from a public health standpoint I shall say little on the first question referring to methods of getting knowledge of the case and the points for determining the early diagnosis because Dr. Craig, who is to follow, will develop this phase of the subject very much better than I could do.

As to health procedure with an open case resident in a house, the health officer or educator has to determine his line of action in each individual case after a full investigation has been made. With cleanly individuals fairly well housed, his first concern is that a far advanced case may sleep and live most of the time in open rooms separated from other members of the household. With no children in the dwelling, such person may not necessarily be removed from the residence, the adults in the household having already been infected years ago, they need only be taught right methods of living and to have full appreciation of what lowers individual resistance.

Treat all adults in the household as passive cases of latent tuberculosis likely to become active with individual resistance greatly lowered. Use all precautions for collecting and destroying sputa,

minimize every household danger from the case, but do not go into hysterics about removal of the case. The danger that has been done and that is likely to be done is always susceptible of corrective treatment by education and proper re-arrangement of social conditions in the household.

What shall we say where infants or children reside in the household? From present knowledge we know that the young child is easily infected, and is more apt to succumb to acute disease shortly after the initial dose, especially if massive has been acquired, especially if the dose has been a large one, hence, with the average far advanced case in the home of a humble citizen where household isolation and segregation cannot be carried out, with the careless case and a child in the household, hospitalization or sanatorium care should be urged.

The management of each individual case of tuberculosis is very largely a matter of safe adjusting of social environment and re-education of the individual, both as to the care of himself and those with whom he associates. Make the patient see how he becomes a menace to others; what he must do in order to protect others; make him see how acute disease, tuberculosis, came about because of lowered resistance; make him appreciate what lowered his resistance and gave opportunity for his latent disease to become active. With these facts instilled in the mind of the patient, and the nurse to follow on as a check upon the patient's absentmindedness, forgetfulness, and failure to grasp the whole lesson we have done what is essential for those who are inclined to be careful.

Every city and populous town, the county seat in every county, and the largest centres of population should have an educational tuberculosis clinic or health centre. In such a clinic, from time to time, all suspected of being tuberculous, the large horde who entertain old-fashioned notions and depend upon medical remedies for cure, might be gathered for careful examination, classification and instruction. From this educational centre, nurses would work into the homes of all who need instruction and re-education. Such centres are commonly called T. B. clinics or county clinics. Within the last few years the word health centre has been very generally applied to this sort of educational centre.

Many individuals may receive from such a centre through its medical and nursing corps and through literature distributed from this source, the necessary re-education to effect a cure, if cure be possible, and how to protect those about them where the individual is highly infectious. It is always extremely difficult to re-educate

a man of meager early education, and who comes from a humble walk of life. Persons most likely to get well may re-adjust themselves to right environment and re-educate themselves very much quicker by residence in a sanatorium for a period of at least from three to six months. If, perchance, the individual receiving sanatorium treatment does not go on to cure, the re-education has, at least, made him less a menace to those about him during the remainder of his life.

If the actively tuberculosis individual be necessitous, he should undoubtedly be sent to the sanatorium, or if far advanced, to the hospital, and ample provision should always be made to advise and treat the necessitous first.

I fear too often treatment is planned for those who may bear all or a portion of the expense, and that the dangerous and necessitous get sanatorium help with too great difficulty.

Just how much of the work shall be done by governmental agencies and how much by private philanthrophy is a debatable question. In many parts of England, and in some other parts of the world, notably in the English colonies of the Pacific, they are coming to pay for all institution care out of the rates. It has been the custom in this country to develop most institutions in large part by private philanthrophy, and eventually to have them supported in whole or in part by public grant.

Each Province will have to work its own programme. I am inclined to think, however, that the Government will more and more have to shoulder full responsibility and bear the full burden of hospital and sanatorium care for the necessitous; and that private philanthrophy and private charity will more and more be devoted to the comfort and relief of special cases and to developing popular new charities.

Believing, as we now do, that tuberculosis is almost wholly the result of faulty social conditions, and incidentally only of physical conditions, we naturally then include with the tuberculosis programme every form of human welfare. A good housing campaign may do as much for tuberculosis in the community as an active tuberculosis campaign. Child welfare campaigns aim to improve the very conditions in every home that are responsible for tuberculosis. Right methods of living, campaigns of ventilation, medical and nursing school supervision, and model schools with nutrition and posture clinics and essential sanitary details worked out completely all have tremendous bearing on the incidence of tuberculosis.

Those who wiped out the saloon and lessened the chance for alcoholic dissipation, doing so largely on moral grounds, and for lessening poverty, have undoubtedly contributed in very large measure toward the tuberculosis programme.

What we should do then is join together for an intensive campaign of improving public health conditions generally. Let us multiply clinics where suitable health advice may be given. Let us be prepared to give every woman untrained in sanitary science opportunity to obtain free advice concernig the matters in her household that directly effect the health of her family. Let us lead expectant mothers to solicit such advice, but first let us also lead the housewife to the point where she sees the advisability of soliciting health information. Let our public health programme begin with prenatal care and carry on to the end of the productive period of life; then and not till then, will we be doing our full public health duty in lessening the prevalence of tuberculosis.

The Establishing and Re-Establishing of Breast Feeding

EDITH HASLAM, R.N.V.O.N.

IN 1919 it was my privilege to observe the splendid work for the stimulation and restoration of this function as demonstrated by Dr. Truby King and his wonderful nurse assistant in the little hospital at Earl's Court, London, England.

My position as Superintendent of an Infant Welfare Centre prevented my taking the course in Infant Feeding and Care being offered, but since the work was closely affiliated with the maternity and child welfare work in London, I was able to closely observe the progress of many of our mother members who were referred from our centre to Earl's Court. Breast feeding was successfully maintained in most cases and in other partially—even when weaning had taken place many weeks before. Once a nurse has a clear grasp of the principles necessary for success, and is sure of the fact that every mother can nourish her offspring in the natural way, with those rare exceptions which merely prove the rule, she will find immense encouragement in almost every case she undertakes. The following rules are given the mother, and in a few days the increase of breast milk fully repays the efforts made:

1. A hopeful and determined point of view on the part of the mother.
2. Absolute regularity of feedings with no night feedings.
3. The mother to take a drink of water, milk, cocoa or weak tea before *each* feeding.
4. Personal hygiene—a daily sponge or full warm bath and a satisfactory daily bowel movement.
5. The mother to sit before two bowls of water—one hot and one cold, each with its own wash-cloth and to bathe the breasts alternately until a pink surface results—drying of the nipples is of great importance as cracks are liable to occur if they are left damp.
6. Massage of the breasts toward the nipples to stimulate the blood-flow.

Prenatal care to-day insists upon the importance of at least six glasses of water each day, and all nurses know the argument for breast feeding well enough to need no emphasis here. That her

baby will be a happy, healthy member of the family if his routine and digestion receive the same thoughtful care which is given other departments of household science, is a fact which is gradually being recognized by mothers of all grades to-day.

Regarding the function of breast feeding, Dr. Truby King gives us some telling facts in his "Natural Feeding of Infants," and his "Feeding and Care of Baby." The baby should be put to the breast within six hours of birth for a period of less than two minutes to stimulate the secretion of milk and failure of milk supply is often due to the nurse not putting the baby to the breast soon enough and not persevering.

"During the first week baby should have both breasts at each nursing, sucking each breast at first for under two minutes, the second day for three minutes, and so on. Prolonged suckling, at first, is apt to cause tenderness and cracking of nipples. Mothers are generally told that after the first week baby must have only one breast at each nursing—the breasts being used alternately. This is right where the mother has plenty and baby gets all he needs from one breast. But where this is not the case—where the supply falls short of what is needed, and one breast does not furnish enough for one feeding—baby should certainly be put to both sides at each suckling, the right breast being used first at once feeding time and the left first at the next. This is the best means of stimulating the secretion of milk, from eight to ten minutes being allowed for each breast. In any case the breast first suckled should be emptied, but with an increasing supply less and less time should be allowed in regard to the second breast, and if the supply becomes ample, only the one breast should be used at each nursing."

Absolute regularity of feeding times gives the gland the education necessary and prevents the exhaustion consequent upon irregular and too frequent working. Dr. D. C. Cameron, of London, says, "Women are too apt to look upon the secretion of milk as something which they themselves give their babies. It would be more true to regard it as something which the healthy child provides for himself. If the breast is emptied completely, it fills again, as it were, to the same level and a little beyond. If, from weak sucking it is not emptied, the milk falls off in quantity and quality alike."

Three hourly feedings are generally considered best up to the age of six months, then four hourly intervals are quite successful, many infants thriving on four hourly feedings from birth. Regarding "night feedings," Dr. Truby King says, "Nothing in the

history of modern baby-feeding is more strange than the way in which humanity seems to have jumped to the conclusion that a young infant needs 'night feeding' without ever pausing to consider whether the procedure is really a natural and proper one—ignoring the fact that darkest night is the appointed period for the most profound rest and the deepest sleep, and that it is not customary for the young of other mammals to be suckled at this time."

The baby should be fed only six times in 24 hours (say at 6 a.m., 9 a.m., 12 noon, 3 p.m., 6 p.m. and 10 p.m.) ; this ensures an undisturbed night's rest to the mother, and establishes the baby in its proper rhythm from the start, saving it from the period of irritability, disturbed rest, and slackening of growth incidental to the breaking of a bad habit a few months later. Both in England and Canada the writer has had the father thank her for making it possible for the whole family to sleep all night by following this "no night feeding" rule, and the improvement in the physique of both mother and baby has been well worth while.

In St. John many babies are now on "full time"' breast milk who were on the point of being weaned. Faithful adherence to the rules is alone responsible for this.

In those cases where the infant is not thriving on the breast a "test feed" will provide a guide as to how much the infant is getting in twenty-four hours. We use an ordinary pair of grocer's scales which we send into the home and carefully explain the process. The baby is weighed, fully dressed, before and after each feeding for twenty-four hours, and a record of the difference in the weight kept by the mother. A three months old baby recently, weighing two pounds below normal, showed that he was only getting 9 ounces in 24 hours by this method. The family doctor was consulted and a formula was given after each nursing. The two pounds were gained in six weeks and to-day he is a Canadian to be proud of. This method of mixed feeding has its dangers of course and as Dr. Cameron says, "It too often happens that so soon as the child experiences the easily-running bottle he instinctively refuses the difficult breast. Moreover, if the difficulty be due to insufficient appetite, we shall not benefit matters by satisfying a part of that appetite by artificial means. So much he less will be left for the breast. For these reasons we must always consider the matter very carefully before we advise mixed feeding. Speaking generally, it is a course which is often too lightly entered upon, and

which is in many cases directly responsible for the drying up of the breast and the institution of bottle-feeding."

Professor Pinard, of Paris, says, "It has been proved that when a baby is given some cow's milk, he digests it much better if, previous to the taking of the cow's milk, he has been given even a very small quantity of mother's milk."

On the other hand, Dr. Truby King says, "Where a breast-fed baby is not doing satisfactorily, and there is any doubt as to whether he is getting the right quantity of food, the rule should be absolute to weigh him before and after each nursing for 24 hours, and not trust to guessing. In a large proportion of cases it would be found that the baby was taking too much, where the mother or nurses had come to the conclusion that he needed more."

Another cause for joy was the case of a young mother whose baby was having a very unhappy time with his bottle. Weaning had taken place ten days before and to-day a plentiful supply of breast milk is the result of three weeks' struggle both of mother and nurse and the baby is thriving happily.

If we can restore the sacredness of this function in the minds and hearts of our Canadian women and help them to become whole mothers, our work among them will bring its own reward in the knowledge that we are doing our small part in increasing the strength and vitality of the rising generation.

The Membership Enrolment Campaign of the Canadian Red Cross Society

"THE CRUSADE FOR GOOD HEALTH."

By Dr. A. H. Abbott, *General Secretary Canadian Red Cross Society.*

THERE are two very different aspects to the Membership Enrollment Appeal of the Canadian Red Cross Society. The one is the *official* aspect, beginning with the commendation of the medical and public health experts of the world. The peace-time work of the Red Cross, as suggested by these experts, met with the approval of the statesmen who drafted the Covenant of the League of Nations, and received the approval of the Canadian Government, both when the representatives of Canada signed the Covenant of the League of Nations and when our Parliament amended the charter of the Red Cross Society to include peace-time activity. The official aspect of the campaign is one in which resolution upon resolution can be quoted, but this has already received a good deal of attention and, therefore, may be taken for granted in this article.

The other aspect of the Membership Enrollment Appeal is distinctly *human.* It deals not with resolutions and documents, but with people, and therefore it may be presumed to be both more interesting and more fundamental in its considerations. We meet the human problem first in the fact that the Red Cross Society is a *voluntary* organization.

There is a sense in which the inclusion of Article XXV. in the Covenant of the League of Nations is dependent upon the fact that it was accepted that a voluntary organization could do valuable work in the field of public health. The reason for this conviction may possibly be found in the work which the Red Cross and other voluntary bodies were able to do as auxiliaries to the Government agencies during the war, but whatever the reason, the fact remains that the nations which have signed the Covenant of the League of Nations have agreed "to encourage and promote the establishment and co-operation of duly authorized voluntary national Red Cross organizations, having as purposes the improvement of health, the prevention of disease and the mitigation of suffering throughout

the world," and that means that an organization not definitely under the control of the Government is authorized to work in the field of public health. It is also significant that the nature of the co-operation to be effected is left to the good sense of the Red Cross Society. There is, however, one remark which may be made with complete confidence on the basis of the experience gained through the war; namely, no voluntary organization which ignores public opinion, can hope to go very far in its work, the support of public opinion being vital to maintaining its activities. Therefore, since the Red Cross Society has been called upon as a voluntary organization to co-operate with Government agencies in the field of public health, it in turn must appeal for public support, and hence it makes its Membership Enrollment Appeal.

But there are other reasons. Any recognized voluntary organization making an appeal to the general public represents the conviction of a number of people that the purpose for which it stands would, in its accomplishment, be for the welfare of the people. The Red Cross Society, therefore, represents, in the first instance, a certain body of public opinion in favor of the improvement of health and the prevention of disease. Its purpose is to make that body of opinion, as nearly as possible, coincident with the citizenship of Canada. That is, behind the Membership Enrollment Appeal, there is the purpose for which the society exists as a peace-time organization, "the improvement of health and the prevention of disease." It is obvious that this can be accomplished only as the people of Canada are educated to the point where they are interested in this purpose, and where they live according to the fundamental principles which make the improvement of health and the prevention of disease possible of accomplishment. Hence, the Membership Enrollment Appeal of the Red Cross is, first of all, an educational campaign for good health.

It is a fact that the modern medical man would rather prevent than cure disease. It is also true that the great majority of our citizens do not give the family doctor much opportunity to practise the prevention of disease. He is called in after the patient has shown more or less alarming symptoms. Modern medicine can practise according to its ideal only as the people grasp the idea that "Prevention is better than Cure" can be applied to disease as well as to other things. Hence, membership enrollment in the Red Cross is a step toward the realization of the medical ideal.

As the Red Cross Society sets out upon this peace-time mission, it wishes to reach the largest number of people with its message,

and to convince them, if only to the extent that they are willing to be taught, that the health of Canadians may be improved. Its message is that scientific discovery has placed in our hands the knowledge which, if put into practice, will result in the improvement of health. Therefore, it requires but the bringing of scientific information, expressed so that they can understand, to interested people, to lead to at least a beginning in this good work. This is the foundation of "The Crusade for Good Health."

The Red Cross Society does not claim to have any special knowledge—it relies upon medical and public health experts for that. It does not have a programme except as that may be expressed in the most general terms. It is not required to initiate the movement, for the public health services of Canada have already made a splendid beginning, and have accomplished a very great deal, and voluntary organizations have made substantial progress in educational work for better health, especially in specialized fields. It does claim, however, the right to pass on to the people the knowledge which they need in order to practise personal, family, and community hygiene. It believes that by enlisting the sympathy and interest of hundreds of thousands of our citizens, which it hopes to do by making them members of the Red Cross Society, it will tend to foster and extend public opinion in favor of sane and progressive health measures and in favour of an extension of the public health services to such an extent that what is now the knowledge and practice of a few may become the knowledge and practice of the majority of our people.

Nor must the place of the Junior Red Cross be overlooked. The organization in the schools of Junior Red Cross auxiliaries, through whose activity the actual practice of personal hygiene is encouraged, will mean that the next generation will be better informed on health matters and also better trained in good health habits, and consequently health is likely to occupy a more prominent place in the interest of the nation than it has occupied in the past.

"The Crusade for Good Health" appears on all the literature of the Red Cross Society, and it is hoped that the phrase will express more and more, both in earnestness of purpose and in recognition of the righteousness of the cause, the real spirit of Red Cross service.

The Canadian Red Cross Society has expressed its desire to co-operate fully with all Government authorities, Federal, Provincial and Municipal, working in the interest of public health. This

it does by asking that it may be used. It has also shown its readiness to co-operate with other voluntary bodies working in the field of public health by the assistance which it has given them. It seeks to supplant none—it wishes to strengthen all. It strives only to make its service mean the most that voluntary service can mean in the realm of public health, to the people of Canada.

When it says, "Join the Canadian Red Cross," it appeals in no self-seeking spirit, for it believes that those who pay their dollar and thus express their interest in the cause for which it stands, will thus join the forces which are working for "the improvement of health, the prevention of disease and the mitigation of suffering throughout the world." When the universal enrollment of our people becomes an accomplished fact, much will have been done toward the making of Canadians a healthier, happier and more efficient people.

News Items

New Brunswick Health Week, held during the week commencing April 25th, was an unqualified success. The speakers included in addition to Hon. Dr. Roberts, who seemed as usual to be sufficiently energetic and enthusiastic to be omnipresent, Dr. John Amyot, Deputy Minister of Health, Ottawa; Dr. Helen MacMurchy, Chief of the Chlid Welfare Division, Ottawa; Dr. Alexander Fleisher, Assistant Secretary, Metropolitan Life Insurance Company, New York; Dr. Geo. D. Porter, General Secretary of the Canadian Association for the Prevention of Tuberculosis; Mr. Norman Burnett, of the Canadian National Committee for Mental Hygiene, and Dr. Gordon Bates, General Secretary of the Canadian National Council for Combating Venereal Diseases.

The speakers delivered addresses during the week at practically every important town and city in the province. The meetings were largely attended and enthusiastic, newspaper support was all that could be desired, and general public interest very marked. It is hoped that a more extended description of this somewhat unique and successful demonstration of how to deliver public health education in large doses will appear in an early issue of the PUBLIC HEALTH JOURNAL. Meanwhile New Brunswick and Dr. Roberts are to be congratulated.

Miss Edith Haslam, R.N., who served overseas during the war, and later worked under Dr. Truby King in London in 1919, has been appointed Child Welfare Director of the Victorian Order of Nurses in St. John, N.B.

Under the auspices of the Women's Canadian Club of Saint John, N.B., Dr. Helen MacMurchy, who was in the Province for the New Brunswick Health Week, gave an eloquent address before a crowded house, on the subject "The Canadian Mother."

On Wednesday, April 27th, 1921, a Provisional Child Welfare Association was formed at Fredericton, N.B. Dr. Helen MacMurchy addressed the meeting. As mentioned in its constitution the object being to unite, to co-ordinate and to foster the Child Welfare activities of the Province. Mrs. W. A. Ferguson, of Monc-

ton, was elected President. Mrs. Ferguson is a woman with high ideals, splendid ideas, and a born leader, and one who is richly endowed with that outstanding gift of common sense. The officers of the new organization are: Patron, Mrs. Wm. Pugsley; Hon. President, the Countess of Ashburnham; Hon. President, Dr. C. C. Clark; President, Mrs. W. A. Ferguson, Moncton; 1st Vice-President, Dr. Doris Murray, St. John, N.B.; 2nd Vice-President, Mrs. W. G. Clark, Fredericton; 3rd Vice-President, Mrs. David Martin, St. Leonards; 4th Vice-President, Mrs. Charles Comben, Woodstock; 5th Vice-President, Mrs. Marks Mills, St. Stephen; Secretary, Miss J. K. Stewart, Fredericton; Treasurer, G. W. Taylor, Fredericton.

Have you sent in a report of your Child Welfare work? If not, you are invited to do so. No work is too small or too new to be of interest. Reports to date have been received from: London (Ontario) Child Welfare Association; Provincial Board of Health, Ontario; Provincial Board of Health, Nova Scotia; Child Welfare work under the Red Cross Society in Prince Edward Island; Hamilton Patriotic Fund Clinic; Massachusetts-Halifax Commission; Report of Formation of British Columbia Child Welfare Council; Child Hygiene Nursing under Provincial Board of Health, Manitoba; Report of Formation of Child Welfare Council, New Brunswick; Report of Child Welfare work, New Brunswick; by a Red Cross nurse; Work at the Evansville Playground, Stellarton, N.S. Address Child Hygiene Section, Canadian Public Health Association, 206 Bloor Street, Toronto.

On Friday, April 29th, a largely attended meeting was held at St. John, New Brunswick, for the purpose of organizing a New Brunswick branch of the Canadian Association for the Prevention of Tuberculosis. Following an address by Dr. Geo. D. Porter a Nominating Committee was appointed consisting of Mrs. M. B. Edwards, Dr. Murray McLaren, R. T. Hayes, W. E. Scally, Mrs. R. J. Hooper and Hon. Dr. W. F. Roberts. The names of the officers will be announced later.

An interesting piece of work is being carried on at the Evansville Playgrounds, Stellarton, Nova Scotia. This is a new undertaking of the Acadia Coal Company in one of the mining sections of Stellarton and the company's aim is the bettermen of living conditions for its employees.

Through the Playground an effort is being made to reach the children, and it is hoped that by fostering continually in work and play higher ideals in the children, they will have higher conceptions of home and community life.

A few years ago the families in Evansville were mostly of foreign birth, and some of these of a low moral type, so that quite a problem was presented. However, during the last two or three years many of these have moved away and there has been a decided change for the better. Yet as this section is somewhat isolated from the town proper it seemed fitting to begin the work here, where, owing to the distance from the town schools as well as indifference on the part of some parents to the welfare of their children, boys and girls who should be in school are on the streets. It is hoped that by forming habits of regular attendance at the Playground the smaller children will have a desire to keep on at school when they become of school age.

The work as begun in January of this year combines the activities of both kindergarten and playground. A building has been fitted up with wide verandahs, two large rooms for work and play, a smaller room where the sand table is, cloak rooms and toilet. A very comfortable and cosy rest-room has also been provided for the two workers in charge.

With the warmer weather it is hoped to open an outdoor playground, but during the winter months the children are within doors the greater part of the time, though it is made a rule to have them out at least a half hour each day, and when the weather has been favourable the workers have taken them on short walking and coasting excursions.

The group age in attendance is three to seven years, with an enrollment of thirty-six.

At Moncton, N.B., on Tuesday, April 26th, a New Brunswick branch of the Canadian National Council for Combating Venereal Diseases was organized with the following officers: Patron, Lieut.-Governor Wm. Pugsley; Hon. President, Sir J. Douglas Hazen; President, W. B. Snowball, Chatham; 1st Vice-President, Dr. A. R. Landry, Moncton; 2nd Vice-President, George Clark, Fredericton; Secretary, Dr. G. J. Oulton, Moncton; Treasurer, W. A. Lockhart, St. John. Dr. Gordon Bates addressed the organizing meeting outlining the duties of various committees of the Council and describing work already accomplished in various parts of Canada.

ONTARIO

The Provincial Board of Health of Ontario

COMMUNICABLE DISEASES REPORTED BY LOCAL BOARDS OF HEALTH FOR THE MONTH OF MARCH, 1921.

COMPARATIVE TABLE.

Diseases.	March, 1921. Cases.	Deaths.	March, 1920. Cases.	Deaths.
Small-pox	526	3	446	7
Scarlet Fever	436	16	560	29
Diphtheria	447	47	451	56
Measles	238	4	1,256	23
Whooping Cough	237	19	136	31
Typhoid	30	11	27	7
Tuberculosis	181	13	213	173
Infantile Paralysis	.....	6	.....	.....
Cerebro-Spinal Meningitis	9	5	7	1
Influenza and Pneumonia	78	42	3,053	734
Primary Pneumonia	.....	315	.....	602
	2,182	602	6,143	1,663

VENEREAL DISEASES REPORTED BY MEDICAL OFFICERS OF HEALTH FOR MARCH, 1921.

	1921 Cases.	1920 Cases.
Syphilis	211	64
Gonorrohoea	157	77
Chancroid	10	8
	378	143

CASES AND DEATHS FROM ENCEPHALITIS LETHARGICA (SLEEPING SICKNESS) FOR THE MONTH OF MARCH, 1921.

Lambton County—Plympton	1 case
Middlesex County—London	1 death
Wellington County—Arthur	1 death

SMALL-POX CASES REPORTED BY LOCAL BOARDS OF HEALTH FOR THE MONTH OF MARCH, 1921.

County	Municipality	Cases	Dths.
Brant	Brantford	15	..
	Oakland	1	..
Bruce	Wiarton	2	..
Carlton	Ottawa	168	..
	Nepean	7	..
Dufferin	Melancthon	1	..
Elgin	St. Thomas	21	..
	Dunwich	15	..
	Vienna Village	1	..
Essex	Essex Border	3	..
Frontenac	Kingston	1	..
Grey	Sullivan	1	..
	Owen Sound	12	..
Hastings	Belleville	10	..
	Marmora Tp.	1	1
	Trenton	4	..
	Deseronto	1	..
	Marmora Village	1	..
	Tyendinaga	1	1
Kent	Chatham City	4	..
Kenora	Grant Tp.	2	..
Lambton	Sarnia	1	..
Lanark	Dalhousie	1	..
Leeds & Grenville	N. Crosby	1	.
Lennox & Addington	Camden	1	..
	Adolphustown	1	..
Middlesex	London	12	..
	Strathroy	1	..
	Westminster	2	..
Muskoka	Bracebridge	9	..
	Gravenhurst	1	..
	Freeman	4	..
	Monck	4	..
	Draper	1	..
Nipissing	Widdifield	2	..
Norfolk	Simcoe	2	..
	Charlotteville	5	..
	Windham	1	..
Ontario	Rama	3	..
	Uxbridge Tp.	1	..
Oxford	Woodstock	2	..
Parry Sound	Parry Sound	16	..
Perth	Elma	1	..
	Listowel	1	..
Prescott & Russell	Cumberland	1	..
	Clarence	7	..
Prince Edward	Hellier	3	..
	Picton	1	..
Renfrew	Renfrew	11	..
	Horton	1	..
	Raglan	8	..
	Bagot & B.	2	..
	Eganville	4	..
Rainy River	Ft. Francis	1	..
	Midland	4	..
Stormont, D. & Glengarry	Osnabruck	2	..
	Roxborough	4	1
Sudbury	Sudbury	6	..
	Hager	1	..
Thunder Bay	Jack Fish (Ungd.)	2	..
Temiskaming	Haileybury	9	..
	Bucke	4	..
	Lumber Camp	1	..
Waterloo	Kitchener	11	..
	Waterloo Town	1	..
Wellington	Eramosa	6	..
	Garafraxa W.	3	..
Wentworth	Hamilton	18	..
York	Toronto	22	..
	Newmarket	1	..
	Gwillimbury E.	36	..
	Gwillimbury N.	13	..
		526	3

Editorial

Publicity in Public Health

NEW BRUNSWICK Health Week, just completed, proved to be not only a tangible evidence of the organizing ability of New Brunswick's energetic Minister of Health, but also an excellent demonstration of how to deliver public health education to the public on a large scale. Meetings addressed by leaders in various phases of public health were held in all parts of the provinces during the week commencing with large Sunday afternoon meetings at Fredericton, St. John and Moncton. The audiences throughout the province were large and listened to the various speeches with an attention which left nothing to be desired. Newspaper support, editorial and otherwise, was magnificent. A somewhat interesting feature of the contribution supplied by the newspapers was the scattering through the news columns of terse public health axioms in heavy type. Another interesting type of co-operation was undertaken in the schools of the province, in which a certain part of each day was set aside for the discussion of a particular aspect of health. Brief essays written upon the blackboard were copied by the pupils and taken home. The co-operation of the churches of the province and of the Women's Institutes was also very evident.

Altogether at the end of the week we could not but feel that public health is at last beginning to come into its own. It is true that in the past the knowing among us have insisted that public health should be the first consideration of a statesman, but, unfortunately, such statements have been largely academic in character. Actually the subject is quite as important even as a victory loan or a political campaign. Why, then, not elevate it to the position of prestige which it deserves.

Notes on Current Literature

From the Department of Information on Public Health, Canadian Red Cross Society.

Book Notices.

Short Talks on Personal and Community Health.

By Louis Lehrfeld, M.D. Philadelphia: F. A. Davis & Co., 1920. Cloth, pp. 271. $2.00.

A collection of short articles on health topics issued by the Philadelphia Department of Public Health. These articles are well written in simple, popular language and include numerous useful hints of interest to the lay reader.

Sanitary Entomology.

(The details and review of this book have already been sent to you.) Price of this not noted by publisher.

Interesting Articles in Recent Periodicals.

International Public Health Problems.

"North American Review," March, 1921. p. 319.

Col. Richard P. Strong describes in masterly fashion the growth of international health bodies from the Paris Conference of 1851 to the League of Red Cross Societies and the International Health Organization.

The Red Cross Society and Public Health.

"Bulletin of the League of Red Cross Societies," March-April, 1921. P. 193.

Organizing the Junior Red Cross.

"The League of Red Cross Societies"—Leaflet.

The Red Cross and Labour.

"Bulletin of the League of Red Cross Societies," March-April, 1921. P. 234.

Municipal Administration of Health Departments.

"American Journal of Public Health," May, 1921. P. 401.

The Red Cross in the United States.

"Health News," March, 1921. P. 55.

A symposium on the activities of the American Red Cross, including voluntary agencies in official health work; the health programme of the American Red Cross and the Red Cross in volunteer health work.

Health Work Among Children of Pre-School Age.

"Modern Medicine," April, 1921. P. 244.

Malnutrition in Children.

"Public Health Reports, U.S.P.H.S.," April 29th, 1921. P. 923.

Adapted from an article prepared by Dr. L. Emmett Holt for the United States Public Health Service. This thorough exposition of the subject will be of interest to every child welfare worker.

Infant Mortality in New Zealand.

"The Survey," April 30th, 1921. P. 148.

The infant mortality rate is a scientific index of social welfare. The reasons why New Zealand has the lowest rate in the world are instructive and, in many respects, applicable to conditions in Canada.

Interesting Children in Habits of Health.

"The Public Health Nurse," May, 1921. P. 239.

Factors That Influence Infant Mortality.

"The American Journal of Public Health," May, 1921. P. 415.

The Public Health Nurse and Social Hygiene.

"Pacific Coast Journal of Nursing," April, 1921. P. 210.

Sex Education.

"The Public Health Nurse," May, 1921. P. 247.

An outline for a course in sex education to be given in conjunction with practical hygiene and home care of the sick.

Suggestions for the Country Nurse.

"The Public Health Nurse," April, 1921. P. 172.

Some very practical suggestions for public health nurses in rural communities.

Food in Its Relation to Health.

"American Journal of Clinical Medicine," April, 1921. P. 269, and May 21. P. 341.

Tobacco and Efficiency.

"Journal of Industrial Hygiene," May, 1921. P. 1.

Industrial Hygiene.

Canadian Research Council.

A survey made by the Committee on Industrial Fatigue of the Canadian Research Council, dealing with the general conditions of industrial hygiene in Toronto, with special attention to the problem of lost time due to sickness.

Housing by Employers.

United States Bureau of Labour Statistics, No. 263.

This report describes housing work done by employers in the interests of their employees. A decription and analysis are made

of the factors in the housing problem over which an employer who essays to provide housing accommodation has more or less control. These factors include such topics as plans of construction, size and number of rooms and the character of the exterior and interior finishes. Altogether this is a most complete and elucidating report.

Canadian Red Cross Publications:

Membership Enrollment Handbook.
The Red Cross in War and Peace.
The Public Health Nurse.
The Community Health Centre.
Alberta Division, Report for 1920.
Saskatchewan Division, Report for 1920.
Saskatchewan Division, Past, Present and Future.
The Junior Red Cross in Saskatchewan.
Peace Time Work in Ontario.

Book Review

Sanitary Entomology. The Entomology of Disease, Hygiene and Sanitation. Edited by William Dwight Pierce, Ph.D., Boston, Richard G. Badger, The Gorham Press, 1921.

So rapid has been the progress of our knowledge of medical and sanitary entomology during recent years, particularly since the outbreak of the war, in which the louse problem became one of first magnitude, that a work embodying the main results of recent developments of this subject has become a great desideratum.

Dr. Pierce's book fills this need admirably. It differs considerably in both aim and treatment from previously published works on medical entomology and parasitology. It is not an elementary text-book, and contains almost nothing on the morphological side of the subject, but it is a valuable source of information for practical investigators, research students and teachers. It is based on a course of lectures prepared mainly by Dr. Pierce for the use of a class of American entomologists, which was organized in May, 1918, "for the purpose of equipping themselves for any special service which they might be called upon to render during the war."

The work is thoroughly practical, all phases of the subject matter that have an important bearing on the relation of insects to diseases of man and the domestic animals, as well as the problems concerned directly with the control of disease-carrying insests, being prepared with great care and thoroughness on a basis of extensive first-hand knowledge on the part of the authors. The full bibliographies which appear at the end of each chapter are also a very valuable part of the work.

Among the features of general interest may be mentioned the introductory chapters by Dr. Pierce, dealing with the general aspects of the subject. In Chapter 1 are discussed the methods by which insects can carry or cause disease. Chapter 2, entitled, "Some Necessary Steps in Any Attempt to Prove Insect Transmission or Causation of Disease" is an excellent outline of the methods to be followed in investigation along these lines. Chapter 3 gives "A General Survey of the Needs of Entomological Sanitation in America," containing descriptions of a typical unsanitary farm, and an unsanitary town, and discussing the general methods

of improving sanitation from the entomological standpoint, in rural and urban districts. Chapter 4 is "A General Survey of the Seriousness of Insectborne Diseases in America."

The remaining chapters deal with particular groups of disease-carrying insects and the more special problems connected therewith.

The book is illustrated by 88 text figures and 28 halftone plates.

E. M. WALKER.

Man-Made Diseases

Many of the diseases that afflict man may almost be said to be made by him, says the U. S. Public Health Service, for they are spread almost altogether by his disregard of the simplest rules of sanitary living.

Typhoid fever, for instance, is spread by the contamination of water, milk, and food, by human filth which has been run into rivers or wells or left exposed for flies to carry to the kitchen or dining room, or which even more disgustingly, is carried to food directly from soiled hands.

Hookworm disease and other intestinal diseases are spread, to some extent at least, by the States which allow road-building gangs to work under conditions which too often compel them to scatter pollution to be carried by flies to their own kitchens or to be ground into the soil to be picked up by the bare feet of children. Practically all hookworm disease is due to soil pollution.

Malaria, too, is often spread by the ignorance and carelessness with which mosquito-breeding places are created or disregarded. Borrow-pits, dug to obtain stone for road work and other needs and left to fill with water, furnish homes for thousands of wigglers, culverts improperly placed produce pools that are equally prolific; ditches that are clogged and never cleared out are popular and populous; railroad and other embankments that stop or check the flow of water create conditions that are ideal—from the mosquito point of view.

Dr. T. F. Abercrombie, health officer of Georgia, has suggested that the convict and other gangs who work along the roads be required to fill up borrow-pits, place culverts properly, clean ditches, and attend to other small but important details that any man can do and that will deprive the mosquito of many of her breeding places.

To accomplish this along the roads is more important than it may seem, for a mosquito hatched at the roadside does not have to wander in search of food; all she has to do is to wait for food to come to her. Moreover, she is of the anopheline species, which spreads malaria, she has excellent chances both to acquire the malaria germs and to pass them along. Until she bites someone who has the disease, her bite, though no more pleasant than that of any other mosquito, is not any more dangerous. But a single malaria patient, driving along a ditch-bordered, mosquito-infested road, may provide hundreds of the insects with germs which they may pass on to every traveller along that road.

Dr. Abercrombie, by making the roads of Georgia safe for man, may materially reduce the malaria hazard of the State, and, according to the Public Health Service, his example deserves to be followed.—*Health News, United States Public Health Service.*